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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,012	12/16/2003	Yingxue Li	P-9254-US	5577

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EXAMINER	
JACKSON, BLANE J	

ART UNIT	PAPER NUMBER
2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/737,012	LI ET AL.	
	Examiner	Art Unit	
	Blane J. Jackson	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22,24-40,42 and 43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-12,14-19,21,22,24,25,27-29,31-33,35,36,40 and 42* is/are rejected.

7)☐ Claim(s) *6,13,20,26,30,34,37-39,42 and 43* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-22, 24-40, 42 and 43 and have been considered but are moot in view of the new ground(s) of rejection. Wang is introduced to clearly teach a wireless communication device with antenna diversity comprising transmit and receive signal adjusters.

Information Disclosure Statement

The Information Disclosure Statement filed 03 December 2007 has been made of record.

Claim Objections

Claim 42 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 42 is an amended duplicate to claim 37.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-5, 7-12, 14-19, 21, 22, 24, 25, 27-29, 31-33, 35, 36, 40 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al. (US 7,260,370).

As to claims 1, 8, 15 and 22, Wang teaches an apparatus and method for adjusting a signal for transmission at a mobile communication device comprising:

Converting a baseband transmission signal to a radio frequency (RF) signal (figure 17, column 15, lines 43-58, RF signal generated in transmitter (112)),

Receiving said RF signal at an adjuster of said mobile communications device (figure 17, column 15, lines 43-58, transmitter (112) provides diversity signals (111a-d)), modulator (113a-d)),

Producing a plurality of RF transmit signals based on said RF signal (figure 17, column 15, lines 43-58, transmitter (112) provides diversity signals (111a-d)),

Determining one or more quality indicators (column 7, lines 60 to column 9, line 10, antenna weight magnitude control loop monitors the power in the combined received signal for antenna weight magnitude control),

Determining one or more quality indicators, the one or more quality indicators comprising at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, a transmit AGC signal and a total receive power, (column 8, line 55 to column 9, line 10, antenna weight magnitude control based on monitored power in the combined received signal),

Establishing a transmit signal adjustment according to the one or more quality indicators (column 7, line 60 to column 8, line 23, antenna weights and combining are performed at RF frequency),

Separately adjusting at said transmit adjuster at least one of the plurality of RF transmit signals according to the signal adjustment to yield one or more adjusted RF transmit signals (column 15, lines 43-57, the complex conjugate of the derived antenna weights are combined to the RF signals for transmit beam forming), and

Transmitting said adjusted RF transmit signals on a respective plurality of antennas elements (figure 17, column 7, lines 19-24, transmit beamforming applied to antennas (21a-d)).

As to claims 4, 11 and 18 with respect to claims 1, 8 and 15, Wang teaches determining the one or more quality indicators further comprises receiving the one or more quality indicators from a baseband processor (figure 17, the total receive power is detects the combined baseband signal).

As to claim 5, 12 and 19 with respect to claims 1, 8 and 15, Wang teaches determining the one or more quality indicators further comprises calculating the one or more quality indicators according to a plurality of received RF signals (figure 17, column 8, lines 55-66, detects the power in the combined baseband signal).

As to claims 7, 14 and 21 with respect to claims 1, 8 and 15, Wang teaches adjusting at least one of the plurality of RF transmit signals according to the signal adjustment to yield the one or more adjusted RF transmit signals further comprises adjusting at least one of a phase and an amplitude of at least one signal of the plurality of RF transmit signals (column 15, lines 47-57, complex conjugate antenna weight is applied for transmit beam forming, a phase and amplitude adjustment).

As to claims 24, 28 and 32, Wang teaches a method, system and the logic embodied in a medium and operable for adjusting a signal:

Converting a baseband transmission signal to a radio frequency (RF) signal (figure 17, column 15, lines 43-58, RF signal generated in transmitter (112)),

Producing a plurality of RF transmit signals based on said RF signal (figure 17, column 15, lines 43-58, transmitter (112) provides diversity signals (111a-d)),

Receiving said plurality of RF transmit signals at an adjuster of said mobile communication device (figure 17, column 15, lines 43-58, transmitter (112) provides diversity signals (111a-d)), modulator (113a-d)),

Determining one or more quality indicators by performing at least one of:

Calculating at least some of the one or more quality indicators (column 8, line 55 to column 9, line 10, calculates or detects the total receive signal power), and

Receiving at least some of the one or more quality indicators from an alternative source to a baseband processor

Establishing a transmit signal adjustment according to the one or more quality indicators (column 7, line 60 to column 8, line 23, antenna weights and combining are performed at RF frequency), and

Separately adjust one or more of the plurality of RF transmit signals according to the signal adjustment to yield a plurality of adjusted RF transmit signals (column 15, lines 43-57, the complex conjugate of the derived antenna weights are combined to the RF signals for transmit beam forming),

As to claims 25, 29 and 33 with respect to claims 24, 28 and 32, Wang teaches wherein calculating at least some of the one or more quality indicators further comprises receiving signal quality information (column 8, lines 55-64, monitors the power in the

combined received signal) and generating the at least some of the one or more quality indicators according to the signal quality information (column 8, lines 55-66, power detector (43) generates the power of combined signal (36)).

As to claims 2, 3, 9, 10, 16, 17, 27, 31, 35 and 40 with respect to claims 24, 28, 32 and 36, Wang teaches the plurality of signals comprise a plurality of signals transmitted to/from a base station and the one or more quality indicators comprise at least one of a power control group boundary signal, a power control group index, a PN code per active finger, a reverse power control bit per active finger, an energy per chip over noise power spectral density ratio per active finger, a channel estimate I/Q per active finger, an energy per bit over noise power spectral density, a transmit AGC signal and a total receive power (column 7, lines 9-24 and column 8, line 55 to column 9, line 10, antenna weight magnitude control based on monitored power in the combined received signal),

As to claim 36, Wang teaches a mobile communication system for adjusting a signal comprising:

An antenna system comprising a plurality of antennas operable to receive and transmit a plurality of received and transmitted RF signals respectively (figure 17, column 7, lines 19-24, antenna (21a-d)),

One or more receive adjusters operable to:

Receive said plurality of RF signals received at said plurality of antennas (figure 17, column 7, line 60 to column 8, line 32, modulator (34a-d)),

Determine one or more quality indicators based on said plurality of received RF signals (column 8, line 55 to column 9, line 10, the total receive power is monitored),

Establish a signal adjustment according to the one or more quality indicators (column 8, line 14 to column 9, line 10, the magnitude of the antenna weight is adjusted to a proper level),

Combine said plurality of adjusted received RF signals to yield a combined adjusted RF signal (figure 17, column 8, lines 24-32, outputs of modulators (34a-d) are combined in summer (35)),

One or more transmit converters operable to convert a frequency of a baseband transmit signal from baseband frequency to a radio frequency thereby producing an RF signal for transmission (figure 17, column 15, lines 43-58 and column 5, lines 49-59, RF signal generated in transmitter (112) with antenna weights combined at RF),

One or more transmit adjusters operable to:

Receive said RF signal for transmission (figure 17, column 15, lines 43-58, transmitter (112) provides diversity signals (111a-d)), modulator (113a-d)),

Produce a plurality of RF transmit signals based on said RF signal for transmission (figure 17, column 15, lines 43-58, transmitter (112) provides diversity signals (111a-d)),

Adjust at least one of the plurality of RF transmit signals according to the signal adjustment to produce at least one adjusted RF transmit signal (column 15, lines 43-57, the complex conjugate of the derived antenna weights are combined to the RF signals for transmit beam forming),and

Provide said plurality of RF transmit signals to said antenna system (column 2, lines 19-24),

A baseband processor operable to receive and process the combined baseband received signal and to produce said baseband transmit signal (column 7, lines 9-24, wireless communication beam forming transceiver with antenna diversity inherently comprising a baseband processor).

Allowable Subject Matter

Claims 6, 13, 20, 26, 30, 34, 37-39 and 43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As to claims 26, 30 and 34, the prior art made of record does not teach generating the at least some of the one or more quality indicators according to the transmit automatic gain control signal.

Conclusion

The prior art made of record and not relied upon but considered pertinent to applicant's disclosure includes Khatri (US 7,020,490), Tanaka (US 4,334,316 and Agee et al. (US 7,248,841).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blane J. Jackson whose telephone number is (571) 272-7890. The examiner can normally be reached on Monday through Thursday, 7:30 AM-6:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.